

# An attempt to incorporate experimental data in the Breeding Blanket First Wall design and safety analysis

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## Abstract

An experimental program in support of the code validation and component qualification for the EU-DEMO Helium Cooled Pebble Bed (HCPB) breeding blanket is under progress at Karlsruhe Institute of Technology. As part of this program, a First Wall (FW) mock-up - representing about 1/3 of the heated zone of an ITER Test Blanket Module (TBM) First Wall - has been tested in HELOKA facility in 2018.

The primary goal of this experimental campaign was to investigate the FW behaviour under Loss of Flow Accident (LOFA) conditions (fast transient). The experimental data have been extensively used for the validation and calibration of RELAP5-3D numerical models used in the safety analysis of the EU-DEMO HCPB.

The aim of this paper is to capitalize the knowledge gained from the 2018 experimental campaign and the following numerical activities to make it relevant for the current DEMO HCPB concept. The outcomes of this work could be also used in support of the further development of the blanket concept, the next numerical activities, and the set-up of future experimental campaigns.

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